

WHAT IS CLAIMED IS:

1. An automotive alternator comprising:

a case;

a rotor rotatably disposed inside said case;

a stator comprising:

an annular stator core fixed to said case radially outside said rotor so as to surround said rotor, a large number of slots opening onto an inner circumferential side being formed side by side in a circumferential direction on said stator core; and

a stator winding installed in said stator core; and

a cooling means for generating an airflow for cooling said stator winding by rotating together with said rotor,

wherein said stator winding comprises a plurality of winding sub-portions each formed by installing a strand of wire in said slots at intervals of a predetermined number of slots so as to alternately occupy an inner layer and an outer layer in a slot depth direction, said winding sub-portions each being formed into a wave-shaped pattern in which straight portions housed in pairs of said slots separated by said predetermined number of slots are linked near axial end surfaces of said stator core by return portions, coil end groups each being constructed by arranging said return portions in a circumferential direction near axial ends surface of said stator core, respectively,

said stator winding is configured into a polyphase alternating-current winding by joining together end portions of said plurality of winding sub-portions in a vicinity of each of axial ends of said coil end groups within a predetermined circumferential range, and

covers are fitted onto each of ancillary connection portions constituted by joint portions between said end portions of said plurality of winding sub-portions so as to closely fit onto an inner circumferential

surface, an axial end surface, and an outer circumferential surface of each of said ancillary connection portions, respectively, said covers each being filled with a first electrically-insulating resin.

2. The automotive alternator according to Claim 1, wherein each of said covers has an annular portion covering an inner circumferential surface and an axial end surface of each of said coil end groups, said coil end groups each being impregnated with a second electrically-insulating resin.

3. The automotive alternator according to Claim 2, wherein said second electrically-insulating resin is a varnish.

4. The automotive alternator according to Claim 1, wherein each of said covers has an annular portion covering an inner circumferential surface, an axial end surface, and an outer circumferential surface of each of said coil end groups, said coil end groups each being impregnated with a second electrically-insulating resin.

5. The automotive alternator according to Claim 1, wherein each of said covers is made of a glass-reinforced epoxy resin.

6. The automotive alternator according to Claim 1, wherein said first electrically-insulating resin is a silicone resin.

7. The automotive alternator according to Claim 1, wherein said joint portions constituting each of said ancillary connection portions are arranged in a straight line so as not to protrude radially outside and inside said coil end groups.